

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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17. März 2004

TBK - PATENT

PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY

(PCT Rule 66)

Date of mailing
(day/month/year)

~~11 03 2004~~ *corrected*
~~11 04 2004~~

Applicant's or agent's file reference

WO 33664

REPLY DUE

within 60 days from
the above date of mailing

International application No.

PCT/IB 2002/002842

International filing date (day/month/year)

19-07-2002

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC

H04L 29/06, H04L 12/56

Applicant

Nokia Corporation et al

1. ☐ The written opinion established by the International Searching Authority:
☐ is ☐ is not
considered to be a written opinion of the International Preliminary Examining Authority.
2. This first (first, etc.) opinion contains indications relating to the following items:
 - ☒ Box No. I Basis of the opinion
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application
3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: 19-10-2004

Name and mailing address of the IPEA/SE
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Form PCT/IPEA/408 (cover sheet) (January 2004)

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WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

International application No.

PCT/IB 2002/002842

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed.")*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages _____ as amended (together with any statement) under Article 19
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

International application No.

PCT/IB 2002/002842

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	_____
	Claims	_____
Inventive step (IS)	Claims	<u>1-20</u>
	Claims	_____
Industrial applicability (IA)	Claims	_____
	Claims	_____

2. Citations and explanations:

Cited documents in the International search report:

D1: VADALI R ET AL: "Agent-based route optimization for mobile IP VTC FALL 2001. IEEE 54TH. VEHICULAR TECHNOLOGY CONFERENCE. PROCEEDINGS. ATLANTIC CITY, NJ, OCT. 7 - 11, 2001, IEEE VEHICULAR TECHNOLOGY CONFERENCE, NEW YORK, NY: IEEE, US, vol. 1 OF 4. CONF. 54, 7 October 2001 (2001-10-07), pages 2731-2735, XP010562472 ISBN: 0-7803-7005-8;

D2: PERKINS, JOHNSON: "Route Optimization in Mobile IP: draft-ietf-mobileip-optim-11.txt" INTERNET DRAFTS, 6 September 2001 (2001-09-06), pages 1-25, XP002234531;

D3: MALKI, SOLIMAN: "Hierarchical Mobile IPv4/v6 and Fast Handoffs: draft-elmalki-soliman-hmipv4v6-00.txt" INTERNET DRAFTS, 10 March 2000 (2000-03-10), page 1-24 XP002234532;

D4: JOO, EDWARDS: "A Fast Reacting Mechanism for Terminal Mobility: draft-ehjoo-fr-rsvp-00.txt" INTERNET DRAFTS, 2 November 2001 (2001-11-02), pages 1-18, XP002234533

The object of the invention is to solve the triangle routing problem while maintaining optimised mobility and location privacy at the same time.

D1, which is considered to be the closest state of the art, relates to a method solving the triangle routing problem. The tasks of maintaining and updating binding caches and encapsulating messages are moved away from individual correspondent nodes to the correspondent agents. D1 introduces a correspondent agent, which makes it possible to tunnel the

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

data to the mobile node and D1 explicit states the feature of bypassing the mobile node's home agent and establishes a tunnel to the node.

The invention differs from what D1 discloses in the matter of naming the different parts. These parts are performing operations in accordance to the parts of D1. By referring the details of D1 to the wording of claim 1 this will be more apparent:

According to the method of D1 a route is established from the source (CN) via on first agent (CA) associated to the source, at least two agents (FA and HA) associated to the destination to the destination. The route is to be optimised and when rerouted the HA is bypassed. From what the invention states according to claims 1 and 11 the invention is considered to be an obvious method/system for a person skilled in the art that requires no extra inventive activity by the skilled person from what D1 discloses. Hence, the invention according to claims 1 and 11 lacks an inventive step.

The binding update in D1 may be initiated by the foreign agent in the system or the mobile node. Therefore, the invention according to claims 2,3,12 and 13 is considered to be an obvious feature to a person skilled in the art and lacks an inventive step.

To send the route optimisation in the resource reservation signalling does not require extra inventive activity by the skilled person and thereby lacks the invention according to claims 10 and 20 an inventive step.

To base the decision on the service or the quality of service required does not require extra inventive activity by the person skilled in the art to implement in the system of D1. Therefore, the invention according to claims 4-6 and 14-16 lacks an inventive step.

D1 discloses the feature of informing the first agent of the care_of_address of the destination and hence, the invention according to claims 8,9 and 18,19 lacks an inventive step.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

Neither is the ability to base the routing on the estimated benefit in form of a threshold value considered to involve an inventive step. Hence, the invention according to claims 7 and 17 lacks an inventive step. Bypassing the mobile's home agent is also known from D2 (chapter 1 and 3) and D3 (chapter 7,8). D2 also discloses the route optimization that provides means for any node to maintain a binding cache containing the care-of address of one or more mobile nodes. When sending an IP datagram to a mobile node, if the sender has a binding cache entry for the destination mobile node, it MAY tunnel the datagram directly to the care-of address indicated in the cached mobility binding.